

TUOLUMNE MEADOWS BRIDGE

Yosemite National Park Roads and Bridges

Spanning Tuolumne River on Tioga Road

Tuolumne Meadows

Tuolumne County

California

HAER NO. CA-109

HAER

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55-TUOLM,

2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

U.S. Department of the Interior

P.O. Box 37127

Washington, D.C. 20013-7127

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TUOLUMNE MEADOWS BRIDGE
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I. INTRODUCTION

Location: Tioga Road, spanning Tuolumne River
in Tuolumne Meadows, Tuolumne
Meadows vicinity, Tuolumne County,
California

Quad: TIOGA PASS, CA
UTM: 11/292960/4194500

Date of Construction: 1933

Designer and Builder: U.S. Department of Agriculture,
Bureau of Public Roads: Dr. L. E.
Hewes, Deputy Chief Engineer; C. H.
Sweetser, District Engineer; Levant
Brown, Senior Highway Engineer;
Harry S. Tolen, Supervising
Engineer; T. M. Roach, Resident
Engineer.

Contractor: C. G. Willis & Sons.

Original and Present Owner: Yosemite National Park, National
Park Service.

Structure Type: Steel girder and reinforced concrete
deck bridge

FHWA Structure No.: N/A

Present Use: Road bridge.

Significance: Tuolumne Meadows Bridge typifies
the National Park Service's attempt
to merge road structures into their
natural surroundings by making some
use of native materials.

Project Information: This document was prepared as part
of the Yosemite Roads and Bridges
Recording Project, conducted in
summer 1991 by the Historic American
Engineering Record.

Richard H. Quin, Historian

II. HISTORY

This is one in a series of reports prepared for the Yosemite National Park Roads and Bridges Recording Project. HAER No. CA-117, YOSEMITE NATIONAL PARK ROADS AND BRIDGES, contains an overview history of the park roads. In addition, HAER No. CA-149, TIOGA ROAD, contains more specific information on the road on which the Tuolumne Meadows Bridge is located.

HISTORY OF THE TUOLUMNE MEADOWS BRIDGE

The construction firm of C. G. Willis & Sons, which received the contract for the construction of the new Tioga Road between Tioga Pass and Cathedral Creek, was responsible for building a new bridge over the Tuolumne River at Tuolumne Meadows. Early in 1933, the company let a subcontract to Phillip Drezick, but he immediately showed signs of being undependable and was relieved before work began.¹

In summer 1933, C. G. Willis & Sons began work with twenty men on the new bridge. The excavation for the bridge's piers and abutments was soon finished, and by the end of the month, the masonry work was complete for abutment #1 and pier #1.²

Sand and gravel for the bridge's construction was taken from a borrow pit upstream from the bridge at the confluence of the Lyell and Dana forks of the Tuolumne River. The site was an old sandbar adjacent to a park campground. The contractor took out the sandbar, creating a pool 300' square and 20' deep; the action was justified by calling the old sandbar "unsightly" and the new large pool a "scenic attraction." Such removal of natural materials is now prohibited within the national park, but in the 1930s, such practices were common.³

In September, excavations for abutment #2 and pier #2 were completed, and the footings were poured. The falsework for one span was put into place.⁴ Work was suspended later in the fall due to heavy snows and freezing weather. Willis & Sons resumed work in summer 1934, and finished the steel work and the deck. The bridge was completed in August and accepted by the Park Service.⁵

The steel-girder and reinforced concrete deck bridge is 87' long by 34' wide. The skewed structure rests on two cement rubble masonry piers and masonry abutments. Above each abutment are 1" expansion joints packed with asphaltic paper, and at each end of the roadway are 4" x 8" timber bumpers separating the deck from the approach road. Steel reinforcing bars in the floor slab and facing the girders were supported by metal chairs. Exposed concrete corners are all chamfered. Construction of the bridge utilized the following materials:

Class "D" Concrete	183.74 cu. yds.
Class "S" Concrete	105.56 cu. yds.

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Reinforcing Steel	31,663 lbs.
Masonry	440.91 cu. yds.
Asphaltic Plank	55.3 sq. yds.
Excavation (Removed Materials)	- 396.4 cu. yds. ⁶

The bridge was rated for a dead load on the concrete and masonry of 150 pounds per cubic foot, with an original allowance for future paving of fifteen pounds per cubic foot; the rated live load was two fifteen-ton trucks plus a 30 percent impact allowance, and a 100 pounds per cubic foot rating for the sidewalks.⁷

The Tuolumne Meadows Bridge was designed in a half-spirited interpretation of the "rustic style" that had prevailed for park bridges constructed over the previous decade. While the structure utilizes granite masonry abutments and piers and was originally fitted with a redwood guard rail, the sides of the bridge and the base of the guard rail are plain exposed concrete.

The Tuolumne Meadows Bridge was constructed as part of the first phase of the reconstruction of the Tioga Road in the 1930s. The original wooden guard rail, which matched the present rail on the South Fork Tuolumne River Bridge further west on the Tioga Road, has been replaced, but otherwise the bridge retains its basic original appearance. The bridge carries a great deal of motor traffic in the summer months. Pedestrians frequently crowd the bridge as well, as the bridge is located on the fringe of a concessions area at Tuolumne Meadows, and the views from the bridge of the river meadows and Mounts Dana and Gibbs in the distance are truly sublime.

III. ENDNOTES

1. Robert Charles Pavlik, "In Harmony with the Landscape: A History of the Built Environment of Yosemite National Park 1915-1940" (Master's thesis, University of California at Santa Barbara, 1986), 123.
2. Charles Goff Thomson, Yosemite National Park Superintendent, Superintendent's Monthly Report, July 1933, 9; Superintendent's Monthly Report, August 1933, 7.
3. Pavlik, "In Harmony with the Landscape: Yosemite's Built Environment, 1913-1940," *California History* LXIX (Summer 1990), 192-93.
4. Thomson, Superintendent's Monthly Report, September 1933, 8.
5. Idem, Superintendent's Monthly Report, August 1934, 10.
6. Specifications table in U.S. Department of Agriculture, Bureau of Public Roads, "Bridge over Tuolumne River, Tioga Road, Yosemite National Park Project 4-G-1," Construction drawings RG 321 A-D, March 1932, Sheet 1.
7. *Ibid.*.

IV. BIBLIOGRAPHY

Pavlik, Robert Charles. "In Harmony with the Landscape: Yosemite's Built Environment, 1913-1940." *California History* LXIX (Summer 1990).

--"In Harmony with the Landscape: A History of the Built Environment of Yosemite National Park 1915-1940." (Master's thesis, University of California at Santa Barbara, 1986).

Thomson, Charles Goff. Superintendent's Monthly Report, July 1933.

--Superintendent's Monthly Report, August 1933.

--Superintendent's Monthly Report, September 1933.

--Superintendent's Monthly Report, August 1934.

U.S. Department of Agriculture, Bureau of Public Roads. "Bridge over Tuolumne River, Tioga Road, Yosemite National Park Project 4-G-1." Construction drawings RG 321 A-D, March 1932. 4 sheets.